

Application No.: 10/729,322

Docket No.: JCLA12520

AMENDMENTS

Please amend the application as indicated hereafter.

In The Title:

Please amended the title as follows:

REFRIGERATING DEVICE USING A REFRIGERANT CONTAINING CARBON
DOXIDE

In The Specification:

Please amend the specification in the following paragraphs.

[0004] On the other hand, the use of carbon ~~oxide~~dioxide as refrigerant of refrigerating devices is proposed, for example, as disclosed in Japanese Laid Open Publication Nos. 2002-106989 and 2002-188872. The carbon dioxide is characterized by its modulus of rupture for ozone is zero and the warming coefficient is small, so that the use of carbon dioxide is very superior in view of environment protection. However, as compared with the aforementioned hydrocarbon refrigerant, an absolute capacity of being a refrigerant gets worse. Therefore, a desired coefficient of performance (COP) cannot be obtained in the present days that power saving is required.

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Furthermore, regarding the reliability in material and machine, etc., carbon ~~oxide~~dioxide is worse compared to the currently used refrigerant.

[0018] The nature refrigerant to be mixed with the carbon dioxide can be non-fluorinated hydrocarbons, such as ethane, propane, propylene, butane, isobutane and pentane, ~~etc.~~, or ammonia, for example. Among which, adding hydrocarbon is preferred. Since these nature refrigerants have a small warming coefficient, the usage of the nature refrigerants is very significant in consideration of the earth environment issues. Particularly, the combination of carbon dioxide and the hydrocarbon, it is advantageous in handling the refrigerant mixture because of either nontoxicity or low toxicity. Furthermore, although the hydrocarbon is combustible as describe above, the safety of its use can be increased and improved by mixing with the noncombustible carbon dioxide. The refrigerant (other than the carbon dioxide) to be mixed can comprise at least one kind of various combustible refrigerants (such as artificial refrigerants, etc.) other than the nature refrigerants. However, in view of the environment protection, it is preferable to only add the combustible natural refrigerant to prepare the refrigerant mixture.